

April 9, 1998

William deBoisblanc
Director of Permit Services
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

Re: Proposed Title V Permit for Calpine Gilroy Cogen, L.P., Plant # B1180
Proposed Title V Permit for Cardinal Cogen, Plant # A1629

Dear Mr. deBoisblanc:

The U.S. Environmental Protection Agency (EPA) appreciates the opportunity to review the Bay Area Air Quality Management District's (District) proposed Title V permits for Calpine Gilroy Cogen, L.P., Plant # B1180, and Cardinal Cogen, Plant # A1629, which were received on February 24, 1998. In accordance with 40 CFR § 70.8 (c), and District Regulation 2, Rule 6-411.1, EPA has reviewed the proposed permit during our 45-day review period.

The proposed permits contain several examples of good monitoring conditions. However, as my staff has discussed with Mr. Steve Hill, Air Quality Engineering Manager, on April 6, 1998, there are several issues that need addressing before the permits may be issued. We were able to reach consensus on most issues, as noted in the comments below. We have enclosed our comments for your review (Enclosures A - Calpine, B - Cardinal, and C - General Comments).

Please note that if the permits are later found to require corrective steps (including, but not limited to, reopening for cause) the expiration of both EPA's review period and the public petition period does not compromise EPA's authority to take such measures. The terms contained in these permits are specific to the facilities and do not create conditions for the use, operation, or reliance of any other party.

We appreciate your attention to our comments and look forward to working with you to resolve any outstanding issues. If you have any questions concerning our comments, please do not hesitate to contact John Walser of my staff at (415) 744-1257.

Sincerely,

Matt Haber
Chief, Permit Office
Air Division

Enclosures

cc: Steve Hill, BAAQMD
Ray Menebroker, CARB
John Cioffi, Cardinal Cogen

Larry Krumland, Calpine Gilroy Cogen, L.P.

ENCLOSURE A

EPA Comments on the Proposed Title V Operating Permit for Calpine Gilroy Cogen, L.P., Plant # B1180

1. *Permit Shield* -- Section IX. Permit Shield, Table IX-A-1, for the S101 and S102 Boilers, states that the requirements of NSPS Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, are not applicable because the boilers were built before June 9, 1989. However, as you are aware, a unit for which construction, modification, or reconstruction occurs after June 9, 1989, would become subject to the requirements of NSPS Subpart Dc. Please change the language in this table to accommodate this possibility and clarify the permit.

2. *Permit Conditions* -- In Section VI. Permit Conditions, Condition #2780 Part 6a states that within two weeks of fuel oil use at S100 (Gas Turbine) or S101-102 (Boilers) the permit holder shall have source tests performed to measure TSP from the source or sources burning fuel oil. EPA is concerned that only one test is required, and it is not clear if subsequent tests are to be performed. The Permit Evaluation states that source tests will be performed to verify the particulate emission factor. After the emission factor is verified, Calpine will use the factor and recordkeeping to ensure compliance with the particulate limit of 25 tpy. However, EPA recommends at least testing once every 2 or 3 years, based on the assumption that this source may combust fuel oil a significant percentage of the time (as much as 50%). EPA acknowledges that the permit evaluation states that Calpine has permits to burn fuel oil, but has never used the permits. This statement does not preclude the need to revise the permit condition as discussed, however, the monitoring could be tailored to the frequency at which the units actually operate on fuel oil. For example, testing could be required after initial use, and then triggered after a certain number of hours of cumulative operation on fuel oil.

3. *Opacity for Turbine and Boilers* -- Section VI. Permit Conditions, EPA recommends that Condition #2780 Part 6a. require a periodic EPA Reference Method 9 or other approved EPA test method for opacity to ensure compliance with the general opacity standard. As agreed, please revise the permit to provide for some additional monitoring for opacity for when the unit(s) fire on fuel oil. We suggest the following language:

“For all non-emergency oil firing, the permittee shall be required to have a Visible Emission Evaluation (VEE) performed during the start-up of the boiler and/or turbine on fuel oil, and thereafter on a weekly basis. The VEE period shall be a minimum of six (6) minutes unless any one reading is greater than the visible emission limit, then the observation shall be a minimum of 60 minutes, or until a violation of the emissions limit has been documented. A VEE shall not be required while the boiler fires on natural gas.

In addition, we request that you add monitoring for emergency situations that may continue for extended periods of time. We recognize that the source may not be able to conduct monitoring immediately after an emergency occurs, and this can be considered in developing the permit condition:

“For emergency oil firing, the permittee shall be required to have a Visible Emission Evaluation (VEE) performed within 72 hours of the start-up of the boiler and/or turbine on fuel oil, and thereafter on a weekly basis. The VEE period shall be a minimum of six (6) minutes unless any one reading is greater than the visible emission limit, then the observation shall be a minimum of 60 minutes, or until a violation of the emissions limit has been documented. A VEE shall not be required while the boiler fires on natural gas.

4. *Applicable Emission Limits & Compliance Monitoring Requirements* -- Table VII-A, S-6 Turbine, states that the monitoring frequency for fuel oil usage limitation of 0.55 million barrels per year is on a periodic/event (P/E) basis with monitoring type listed as recordkeeping. However, Condition #2780, Part 9 on Page 18 of the permit states that the owner or operator shall install and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of steam injection to fuel fired in the turbine. The monitoring frequency in Table VII-A does not seem to require continuous monitoring, but only periodic/event monitoring. Mr. Steve Hill agreed that this was most likely an error. Please clarify that continuous monitoring is required and revise the table accordingly.

5. *Applicable Emission Limits & Compliance Monitoring Requirements* -- In Table VII-B, S101, S102 - Boilers on Page 32, no monitoring frequency is required for the 150 ppmv @ 3% O₂ dry emission NO_x limit for the boilers, and the monitoring type is listed as "records". This seems to be an error, because the table on periodic monitoring for NO_x sources in the permit evaluation lists continuous emission monitoring (CEM) as the monitoring type for this limit. This problem is also repeated for the 400 ppmv CO @ 3% O₂ dry limit for the boilers in Table VII-B on Page 33 of the proposed permit. The CEMS should be used to determine compliance with these limits. If the CEMS will not provide data in this emission range, then the best solution may be to streamline the multiple emission limits to the most stringent emission limit and monitoring that most assures compliance as described in White Paper 2.

6. *Administrative* -- As a general comment on the format of the tables in Section VII - Applicable Emission Limits & Compliance Monitoring Requirements, please note that the column entitled "pollutant" has information on operational parameters such as "hours of operation" and "fuel usage", which are not pollutants. This format is somewhat confusing. We suggest revising the column heading to more appropriately reflect the information contained in the rows that follow.

7. *Administrative* -- EPA concurs with the suggested changes to the permit that were proposed by the District's Enforcement and Compliance Division in a letter dated March 20, 1998, from Ellen Garvey to David Howekamp (Enclosure D). The changes are summarized below:

1. A change to the malfunction provision in the old PSD permit to make it more similar to the breakdown provision, which deletes provision IV. Malfunction.
2. Changing the monitoring report provision in the standard conditions of the permit to require reporting within 10 days of "occurrence" rather than with 10 days of "discovery".
3. A clarification that day means "calendar" day.
4. A clarification that reports of non-compliance must be submitted in writing.

8. *Compliance Demonstration*. The permit evaluation does not provide a demonstration for the 300 ppm SO₂ limit and the 3087 lb SO₂/day limit for both the turbine and boilers. If compliance with these limits cannot be demonstrated based on the maximum fuel sulfur content and fuel use, then monitoring for these limits, based on these same parameters, should be included in the permit.

9. *CO Requirements*. The permit (Condition 2780, part 3) requires that 80% of the CO emissions be reduced. To confirm that this requirement continues to be met, and that any deterioration of the catalyst is corrected, the source should be required to do both inlet and outlet CO test each year when the CEMS RATA is conducted.

10. *Applicable Emission Limits & Compliance Monitoring Requirements* -- Table VII-B, S-101, S102, Boilers, lists no monitoring for the NO_x emission limit of 0.2 lb NO₂/mmbtu burned and states that the exemption from monitoring is subsumed by the BACT condition in #2780, parts 3 and 11. While the District has provided a demonstration that the NSPS limit is less stringent than the BACT condition, and provided a permit shield, it is not clear that the NSPS emission limit has been streamlined, because it still appears in the permit. In order to clarify that this limit has been subsumed, it should be not be listed as a separate limit in the permit; however, it should be listed as part of the origin and authority for the 40 ppmv limit to show that this more stringent limit assures compliance with the NSPS limit.

11. *Clarification* -- Page 17, condition 5 should read:

“...The owner or operator shall maintain records on the duration of fuel oil firing, the sulfur content, and in which operating sources fuel oil firing took place...”

Page 27, condition -- should read “...maximum steam/fuel ratio OR 83,000 lb/hr...”

ENCLOSURE B

EPA Comments on the Proposed Title V Operating Permit for Cardinal Cogen, Plant # A1629

1. *Permit Shield* -- Section IX. Permit Shield, Table IX-A-1, for the four boilers, states that the requirements of NSPS Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, are not applicable because the boilers were built before June 9, 1989. However a unit for which construction, modification, or reconstruction occurs after June 9, 1989, would become subject to the requirements of NSPS Subpart Dc. Please change the language in this table to accommodate this possibility.

2. *Monitoring* -- In Section VII-A, S1-4, Boilers, EPA recommends that a periodic EPA Reference Method 9 or other approved EPA test method for opacity be included to ensure compliance with the general opacity standard. As agreed, please revise the permit to provide for some additional monitoring for opacity for when the unit(s) fire on fuel oil. We suggest the following language:

“For all non-emergency oil firing, the permittee shall be required to have a Visible Emission Evaluation (VEE) performed during the start-up of the boiler and or turbine on fuel oil, and thereafter on a weekly basis. The VEE period shall be a minimum of six (6) minutes unless any one reading is greater than the visible emission limit, then the observation shall be a minimum of 60 minutes or until a violation of the emissions limit has been documented. A VEE shall not be required while the boiler fires on natural gas.

In addition, we request that you add monitoring for emergency situations that may continue for extended periods of time. We recognize that the source may not be able to conduct monitoring immediately after an emergency occurs, and this can be considered in developing the permit condition:

“For emergency oil firing, the permittee shall be required to have a Visible Emission Evaluation (VEE) performed within 72 hours of the start-up of the boiler and/or turbine on fuel oil, and thereafter on a weekly basis. The VEE period shall be a minimum of six (6) minutes unless any one reading is greater than the visible emission limit, then the observation shall be a minimum of 60 minutes, or until a violation of the emissions limit has been documented. A VEE shall not be required while the boiler fires on natural gas.

3. *Applicable Emission Limits & Compliance Monitoring Requirements* -- Table VII-B, S-6 Turbine and in Table VII-C, S-8, Duct Burner, states that the monitoring frequency for fuel oil usage limitation of 520 mmcf is “N” or no monitoring. However, the PSD permit part IX.G.4 requires continuous monitoring, and is shown in Table VII-A, S1-4, Boilers on page 35. The monitoring frequency in Tables VII-B and VII-C do not seem to suggest the appropriate monitoring. Mr. Steve Hill agreed that this was most likely an error. Please clarify that continuous monitoring is required and revise the tables accordingly.

4. *Clarification* -- In Section VI. Permit Conditions 2878, Part 16a., the sentence that states “The monthly total number of hours and Source 6 is operated...” should be revised. Please modify as follows: “The monthly total number of hours **that** Source 6.....”.

5. *Applicable Emission Limits & Compliance Monitoring Requirements* -- Table VII-B, S-6 Turbine on Page 38, states that the emission limit for NOx in PSD permit part IX.C.1 is 45 ppm @ 15% O₂ averaged over 24 hours, when burning natural gas. The correct limit according to the PSD Permit Part IX.C.1 as found on Page 26, is 42 ppm @ 15% O₂ averaged over 24 hours. Also, on Page 38, the information

concerning the 42 ppmv @15% O₂ NO_x limit in the row just above this seems to be repeated. This requirement is also found on Page 36 of the same table. Please change the information in the table accordingly.

6. *Applicable Emission Limits & Compliance Monitoring Requirements* -- Table VII-C, S-8, Duct Burner, lists no monitoring for the NO_x emission limit of 0.2 lb NO₂/mmbtu burned and states that the exemption from monitoring is found at 40 CFR 60.48b(h). However, please note that the source is already performing continuous emission monitoring (CEM) to demonstrate compliance with the NO_x emission limit of 42 ppm @ 15% O₂ per permit condition 2878 part 4.

Even though the NSPS does not specifically require the installation or operation of a CEM to measure NO_x emissions, that does not mean that the source is not required to perform some monitoring to demonstrate compliance. Therefore, since CEMS are already being used for the 42 ppm @ 15 % O₂ limit, EPA recommends using that CEM data to demonstrate compliance with the 0.2 lb/mm BTU limit. The calculation as presented in Appendix 1 of the permit evaluation is not sufficient, because it only demonstrates that the 0.2 limit is equivalent to a 58 ppm @ 3% O₂ concentration. The District could use the CEM NO_x and fuel usage data, and convert it to lbs/mmbtu to demonstrate compliance with the 0.2 lb NO₂/mmbtu limit. The other alternative is that the District may streamline to the lower emission. Please select either method and adjust the permit accordingly.

7. *PSD Permit Conditions* -- The PSD permit section IX, special conditions, part D - performance tests states that performance tests for emissions of NO_x shall be conducted for both fuels to be used, on the gas turbine operating alone and in conjunction with the duct burners, on at least an annual basis. This requirement seems to have been deleted from the permit. According to our discussion with Mr. Steve Hill, this appears to have been an oversight and will be added to the permit as necessary. Please revise accordingly.

8. *Administrative* -- As a general comment on the format of the tables in section VII applicable emission limits & compliance monitoring requirements, please note that the column entitled "pollutant" has information on operational parameters such as "hours of operation" and "fuel usage", which are not pollutants. This is somewhat confusing and we suggest revising the heading to more appropriately reflect the information contained in the rows that follow.

9. *Administrative* -- EPA concurs with the suggested changes to the permit that were proposed by the District's Enforcement and Compliance Division in a letter dated March 20, 1998 from Ellen Garvey to David Howekamp (Enclosure D). The changes are summarized below:

1. A change to the malfunction provision in the old PSD permit to make it more similar to the breakdown provision, which deletes provision IV. Malfunction.
2. Changing the monitoring report provision in the standard conditions of the permit to require reporting within 10 days of "occurrence" rather than with 10 days of "discovery".
3. A clarification that day means "calendar" day.
4. A clarification that reports of non-compliance must be submitted in writing.

10. *NO_x Monitoring for Boilers* -- The boilers are required to meet NO_x emission limits ranging from 25-40 ppm through use of low-NO_x burners and flue gas recirculation. In addition to the annual stack test, the

flue gas recirculation setting should be periodically checked to assure that the controls are operating at the same levels at which they were operating during the compliance tests. We recognize that these boilers are restricted in how frequently they can operate, so we recommend that this condition be written to require monitoring only when the boilers are operating. For example, the following language could be used:

The acceptable settings for the fuel gas recirculations valve shall be established by testing emissions from this unit or other representative units as approved by the District. The acceptable settings shall be those for which compliance with applicable NOX and CO emissions rates have been demonstrated through testing.

The fuel gas recirculation valve settings shall be inspected at least on a weekly basis when the units are operating.

The permittee shall maintain records of the date and time of flue gas recirculation valve settings, and the observed setting. The records must also include a description of any corrective action taken to maintain the flue gas recirculation valve setting to within the acceptable ranges.

If the flue gas recirculation valve setting deviates from the acceptable range, the permitting shall notify the District and take corrective action within one (1) hour after detection. If the flue gas recirculation valve settings are not corrected promptly, the permittee shall conduct an emissions test within 60 days, utilizing District-approved test methods, to demonstrate compliance with the applicable emissions limits at the observed flue gas recirculation valve settings.

11. *Fuel Monitoring* -- The turbines and boilers have continuous non-resettable fuel meters, yet certain fuel use limits are designated as having no monitoring. This should be corrected.

ENCLOSURE C

EPA General Comments on the Proposed Title V Operating Permits for Calpine Gilroy Cogen, L.P., Plant # B1180 and Cardinal Cogen, Plant # A1629

1. *Subsumed Requirements Language.* The last two sentences under Section IX.B. of the permit,

“Enforcement actions and litigation may not be initiated against the source or group of sources covered by this shield based on the “subsumed” regulatory and/or statutory provisions cited.”

is not completely accurate, and should be deleted. This statement is only true as long as the source remains in compliance with the associated permit conditions in the Title V permit. If the associated (streamlined) requirements in the Title V permit are violated, however, enforcement action may be taken both for the streamlined limits and the subsumed limits.

2. *General Applicable Requirements* -- In Section III. General Requirements, the second and third sentence of the first paragraph states: “These requirements apply in a general manner to the facility and/or to sources exempt from the requirement to obtain a District Permit to Operate. The District has determined that these requirements would not be violated under normal, routine operations, and that no additional periodic monitoring or reporting to demonstrate compliance is warranted.” EPA feels that these statements may be too broad, and we have concerns that certain insignificant emission units (IEUs) may actually violate standards under normal, routine operations. It may be inappropriate to conclude, without some additional analysis, that any IEU does not require additional monitoring to assure compliance. As a result, there may be exempt sources that have significant emissions which may need monitoring.

For example, the District’s permit exemption list (Regulation 2 Rule 1) exempts equipment that may have emissions as high as 150 lb/day (27.4 tpy). EPA is concerned that internal combustion engines and certain other exempt sources subject to the generally applicable requirement in Table III may have potentially high emissions and/or a greater likelihood of violating the emission standards. Therefore monitoring may need to be considered for some of these units to ensure they meet all of the applicable requirements. For example, on its exempt equipment list, Calpine includes internal combustion equipment which is exempt under District regulation 2-1-115. Cardinal includes internal combustion engines which are exempt under regulation 1-110.2. The District should evaluate whether these units have the potential to violate generally applicable requirements, and either provide a demonstration that this is not the case, or include appropriate monitoring in the title V permit. No evaluation is necessary for many units on the list, for example, fire protection systems which are either not subject to, or would clearly have no potential to violate, generally applicable requirements.

3. *Administrative* - There is not a facility description section in the permit. As discussed with Mr. Steve Hill, EPA suggests that the permit could be improved by adding a facility description section versus only having that information/description in the application. This missing of information makes the permit less clear, and more difficult to use.

ENCLOSURE D

MARCH 20 DISTRICT LETTER

INTERNAL DISTRICT COMMENTS